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ABSTRACT

This report summarizes a joint session held by the Indian Nations At Risk Task Force and the National Advisory Council on Indian Education to hear testimony on issues related to instructional technology in Native American education. The testimony pertained to an exemplary program at Hualapai School in Peach Springs, Arizona. The school, which serves 225 students in grades K-8, has over 90 computers and a video studio with three cameras. The computers provide reinforcement for classroom work, word processing capability within a whole language program, and the ability to create instructional materials in the Hualapai language and materials that are culturally relevant. The video equipment is used to make student productions, often in relation to a cultural environmental curriculum. In addition, elders have been drawn into the school to provide cultural education, such as an ethnobotany program in which elders demonstrate traditional harvest methods and uses of plants, while the teacher provides scientific information. School climate is excellent, and the whole community supports this innovative demonstration program. (SV)

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INAR/NACIE Joint Issues Sessions
NIEA 22nd Annual Conference - San Diego, California
October 15, 1990

"Instructional Technology"

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Summary: "Instructional Technology"

The session on Instructional Technology was chaired by INAR Task Force member Joseph Ely. The following issues and exemplary strategies were discussed:

I. Defining the Issue

- The purpose of this meeting is to discuss the use of "state of the art" teaching methods, such as using computers in the classroom, to teach students various skills.

- I'm a doctoral student and am writing my dissertation on computers and the effectiveness of computer-assisted instruction (CAI) in Native American schools. I've done some work and surveys in Arizona on the extent of CAI in predominantly Native American high schools. Some schools have shown that it can work in almost all subject areas, such as business, agriculture, and drafting, as well as remedial education. It just depends on who uses it, how they use it, and how they implement it. You need a trained staff. You might just have one computer among 30 students that will be an effective program. But you can also have 30 computers in a classroom that serves 100 students which is not very effective because the teachers don't know how to use them and have not received training. Some of the students are more proficient than the teachers.

  It's very hard to find a MacIntosh (MAC) font in Navajo for a MAC program; it just depends on how the program is developed and who's developing it--who's the key. But most computer language is not translated in tribal languages at all.

  A problem is that schools and instructors make computers boring--with repetitious and remedial stuff. But if you become really creative with computers, you can do a lot of neat things with them.

II. An Exemplary Program - Hualapai School, Peach Springs, AZ

Program Overview

- Our school is a public school in northern Arizona, serving 225 children in grades K-8. About ten years ago, we became very interested in instructional technology, and we now have three computer labs with 30 computers each. We also have a video studio with three cameras, where the students and the teachers develop videos for instructional use. A lot of the materials are student-produced videos that they have worked on in their classrooms. Also, we have a MacIntosh hook-up from the main office into all the classrooms so that the teachers have access to it. The teachers put their lesson plans on it so they don't have to make a Xerox copy for the principal.

  The students work on language, arts, and math, or any of the other software programs to re-enforce what they have been taught in the classrooms. The two major programs we use are

Ideal Learning and MAC. Each of these programs has objectives, from addition to subtraction, and some have algebra. Students use it along with the textbook they have in the classroom. They like it because they get quick re-enforcement of a problem they've worked on; whereas in the classroom, if they're working in the textbook, it takes several days for the teacher to grade the paper and give it back to them. With the computers, teachers assign the objectives, and at the end of the week can pull up a printout to see the extent to which children have achieved the learning objectives.

Language Arts Program

Because our school uses a whole language approach, we have several word processing programs. After the children have written a first draft of a story or research paper in the classroom, they can type it on the word processor. The teacher can sit down with the student and edit the writing; also, students can easily do their own editing or next couple of drafts on the computer without getting frustrated by having to write it over and over. This is what we really like about word processing. There's a lot of other software we have that lends itself to the whole language program, such as Writer's Network. The children write the story, answering questions on the computer.

We have recently been trying to put our Hualapai language dictionary on the computer. We put the text on the computer and saved maybe $30 to $40 per page to get it printed because all we did was take our computer disc to the printer, who charged us only $6 to run it on his printer. A lot of the Indian tribes are getting into this; I've been to several conferences where the language is being recorded onto the computers. Computers are used to teach the language, either reading or writing, or even learning Native languages as a second language.

The computer can also re-enforce learning by asking students questions about a story they've seen on the video or on television. That's the same thing with the language. Maybe the computer will say, "My grandfather is sleeping." Then the question will say, "Who is sleeping--your grandfather, your grandmother, your mother, or your father?" So the child has to know the language in order to understand.

Conflict Resolution

The other day, I was observing in the 8th grade classroom; they were showing a program about a parent and teenager confrontation, called "Daddy's Girl." The teacher stopped the video after several minutes and said, "What do you think is going to happen?" The eighth graders start predicting what would happen--the girl slams out of the door, the father is going to yell some more, she'll run crying to her room, or she'll bring in the mother. As much as I've worked with teenagers and talked about conflict and clarification of different values with different children, I've never thought of using the computer. I thought it had a bigger impact on the students than my just standing up there and lecturing, or even with just a dialogue and a pencil or the chalk board.

There was a lot of interaction, and then the teacher would also tell them, "Write down what you think is going to happen." He did this maybe ten times during the 20-minute film. The children were involved, and I thought it was a very effective way to teach about conflicts. He wanted them to write it down so that he could go back and look at it later, after the class. It gives everyone a chance to participate rather than just one child always answering. Having the students write their own scripts is very good because there's a lot of oral language development, not only in English but in the Native language. The students are really active and taking part in their production. Just even at this conference I've noticed there are a lot

of workshops on acting and dramatization and play. And everybody says that if the children take part, they learn a lot more and are re-enforced. I really believe that.

Cultural Relevance and Self-concept

I feel that if children can take the risk, they have a real good self-concept. A lot of the things we do at the school are culturally-based on the child's environment, bringing in informal learning and making it more formalized. Commercial textbooks are based on the urban community, urban society, and our children don't relate to that because they've never really been in urban areas or had those experiences.

What we're trying to do is give credit and take the child from where he is, from that environment that he's in, and make it part of the classroom. This way, we not only involve the child but the parents too. Although we may have paraprofessionals and teachers who are from the community, I tell them, "Bring in the mother. I know you know how to do it, but bring in the grandmother, bring in the aunt, so there's someone from the home coming in." As soon as a parent or relative steps into the classroom, the children want to try harder; they're always very eager to please and are proud that someone from their family has come into the classroom. That's one reason why we're trying to develop a lot of these materials--not only to preserve things that we may use later on and maintain the language, but also for the self-concept of the child.

Instructional Improvement

Having the students use computers and videos saves a great deal of time on the part of teaching personnel. When I first came to the school in 1975, I found that a lot of the curriculum wasn't uniform or there was no continuity from kindergarten to eighth grade. Now teachers have time to plan things better, organize their curriculum and lessons better, so the children can benefit. They're offering quality lessons with manipulatives, which they never had time to do before. There is a lot of interaction with the students because the students are questioning, and they're keeping the teachers on their toes by asking questions that may never have been brought up before. The students are more comfortable asking questions and taking risks in the classroom, although there is still peer pressure. We tell the children "you're here and you're guaranteed an education, and nobody can take that right from you."

Other Factors Contributing to Success

Our program is not one that was dreamed up by one person. It was a whole community thing--the tribal council, the parents, the grandparents. They've all been supportive of this program, and it's really been a focus in the community as a whole. It was a controversial issue. When I came back trying to do the language and culture in the school, the grandparents said, "What are you doing? This is unheard of." Even my mother says, "I don't even want to speak the language because I was punished for speaking it, and I saw people punished for speaking it." She understands it but won't speak it. My dad only went through the third grade, so he didn't have that inhibition. We learned the language from my grandparents and grew up speaking both English and Hualapai.

We have a program where our teacher aides go to summer school every summer, and if there were children that were limited English proficient, teachers had to get their ESL or bilingual endorsement. So our teachers were going to school too. The children see this and develop a whole different value system. They value education. And the parents see that. If they're

going to work as aides, they have to commit themselves to going to school and taking college classes.

Our school is kind of like a showcase, a demonstration site where a lot of people come in and out. They always comment on the atmosphere of the school, where the children are happy, smiling, and glad to be there. We have different consultants who come in, and one was a musician who played all over the Southwest. One thing he said was, "In order to respect someone, you have to have that positive self-concept and self-respect too." It makes us happy to hear comments like that.

Before, in 1975, children always made vulgar suggestions and comments to the teachers in the Native language. That was before we had Native teachers. We've had to really stress to the children and their parents that we have to take the best from both worlds. We're trying to re-enforce values that we feel we want to perpetuate in the schools and valued from the mainstream society.

Parental Values and Support

Parents are the ones who must see that education has value. If they don't value education, if they don't want their kids at school, then that's a tremendous block that we have to overcome. Children have to want to learn. With Indian education, it's the same thing. It can't be imposed upon us like it's been for the past hundred years. We're the ones who have to make up our minds if that's what we really want.

Sharing the Culture and Involving the Elders

When I came to the school in 1975, a lot of the Spanish schools I knew as models for bilingual education were translating the whole curriculum into Spanish. When I was leaving the University of Arizona I contacted some of my Spanish colleagues, who said, "Just translate it." But I thought, "I'm not going to waste my time translating this curriculum into Hualapai. There's no way I'm going to do it because there is no continuous curriculum."

The parents and grandparents--mostly the grandparents--saw a lot of change coming about with the culture in the late 1960s and early 1970s. Because of HUD housing they were no longer with their grandchildren, transmitting the culture. So these grandparents were the ones who came to me and said, "Listen, we know you know the scientific name for the plants, so why don't you help us with our lesson? We want to teach our children about the Hualapai plants, the medicinal, the edible, and the utilitarian uses of the plant. And you teach the other, what you learned at college--the scientific name, the identification, all that." So I said, "Fine. But you have to come with me and do it in the classrooms because I don't have that knowledge." So they came and they did. They came to school every day, and we went on school trips, harvesting the plants and preparing them for storage.

From there our thematic cultural and environmental units began, and now we have a real strong ethnobotany program. When you look at ethnobotany and harvesting plants, it's not only science, it's the nutritional value. So in the fourth grade the children are doing nutritional value testing of, say, a cactus fruit, to see how much calcium and how much vitamin C and how much protein this plant has; they're also writing because they're doing research on what other cultures use that same plant--whether it was white ranchers or different tribes or different cultures within the area, or if this same plant grows in Greece or South America. They're also doing math. They're measuring. So it's just a whole integrated

way of teaching, the holistic way. You can do this writing on the computer and you tie it back into technology with the video taping.

Using Video Technology

The video technology is funded through our Title V program, and our video specialist is paid out of that. But almost all of the equipment was bought by our school district. Students write their stories and they choose one that they would like to script for production of a video tape. Then they go to the studio and tape what they want. We have an editing machine for the videos where they can go in themselves and cut and paste their video tape to make the final production.

These kids are in the third to eighth grade. The video technologist has to be there to assist them, but all the teachers are also instructed in using the equipment. Each Title V classroom is required to produce one video a year.

We have six video machines that are hooked up to the classroom for instructional television. We used ASSET, which is Arizona School System Educational Television.

Impact of Technology Use

- Talking about the students making their own videos and interacting with computers, do you find that this perks their interest? Does it provide enough motivation, and do they feel challenged as opposed to just a teacher in the room and no computers? Also, in comparison to just a teacher in the front of the room, is this causing the students to think more, to problem-solve more, and to interact more?

- I tried to do a long-range study of our students, and I found that 53 percent of the students had either graduated or received a GED, and 53 percent had gone to college or some kind of vocational training. I really don't look at the completion because I feel that even if a student went one or two semesters to college, he or she has an experience that nobody else can take away. They can go back to school when they're 90 years old, as far as I'm concerned.

We don't place much value on achievement test scores because we feel they're based on a different culture and are culturally biased. Our children don't have a lot of those experiences. However, a lot of our children do all right on the achievement test score. The State of Arizona requires a 36 percentile score, and I would say that maybe 60 percent of our students are above that percentile. When I came to the school in 1975, the eighth graders were scoring considerably below grade level. Several years ago we graduated five eighth graders who were in the 90th percentile. Our test scores aren't significantly different than the other reservation and public schools that have bilingual education. But by the time we get to the eighth grade, our reading and math scores are higher. It shows up in the eighth grade only. I don't know why--the average is like around the 40th, 45th percentile. Part of it is probably due to the technology and the environmental curriculum using the culture and the language in the classroom and the whole language program.

This past year we had a 100 percent Indian graduation rate at the high school level. That was because these students were in our bilingual program and had been in our school six or seven years. With technology, whole language, and the environmental curriculum that we developed, our teachers had to be in in-service training almost every afternoon for several years. And when you ask the children what they are going to do when they grow up, they

say, "We're going to school," because they see us in school every day and at least two nights a week.

I would choose cultural environmental curriculum and then go with instructional technology. Instructional technology is another technique, another method of teaching. You can have instructional technology in a cultural environmental curriculum. You can have whole language, too. Those are techniques and methods that you use. You can have cooperative learning, which is what we have also. We need to feel good about the language and the culture. When we were working on our ethnobotany unit, I asked one of the medicine women, "Can you come in and help us with this, some of the plants you know?" And she looked at me and said, "I go to this church, grandchild, and I can't come in." When I asked her why, she said, "Because they told me it's the devil's work." That really hurt me. I told her, "When you look at these doctors and scientists, they're inventing these medicines, and you say that's devil's work?" I tried to convince her that that wasn't the devil's work; it was knowledge. A couple of months later, she came back and helped us in the classroom. But she never went back to church, and I felt bad about it because she thought that she had to choose between helping the children at school, and the church.

I just want to say that in February 1990, my three daughters and I had an opportunity to tour the Hualapai school, and my kids were just flabbergasted. They wanted to move to Peach Springs so they could go to school and take advantage of this technology.